

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method of charging fine-grained metal, metal compounds or a mixture of two or more metals or metal compounds, in particular fine-grained directly reduced iron, into an electric-arc furnace (1), in which the metal, the metal compound or the mixture is supplied essentially continuously via at least one downpipe (12) to one or more openings (10) provided in the furnace roof (4), is introduced into the furnace (1) through said at least one opening (10) as a bulk material stream (11), and falls onto the melt (13) merely by gravity, ~~characterized in that wherein~~ before entering the furnace (1) after the downpipe (12) the bulk material stream (11) is passed through a dosing orifice (8) and enters the furnace (1) essentially undisturbed.

2. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ after the downpipe (12) the bulk material stream (11) is passed through a round or oval dosing orifice (8).

3. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ after the downpipe (12) the bulk material stream (11) is passed through an iris.

4. (currently amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ the dosing orifice (8) is inclined by not more than 25° with respect to the horizontal.

5. (currently amended) The method as claimed in ~~any of claims 1 to 3, characterized in that claim 1, wherein~~ the dosing orifice (8) is arranged horizontally.

6. (currently amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ the mass flow of the bulk material stream (11) in the downpipe (12) is kept larger than the throughput through the dosing orifice (8).

7. (currently amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ after the dosing orifice (8) the bulk material stream (11) is passed through a protective tube (7).

8. (currently amended) The method as claimed in claim 7, ~~characterized in that wherein~~ the protective tube (7) is cooled.

9. (currently amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ the metal, metal compound or mixture of two or more metals or metal compounds introduced into the furnace (1) has a mean grain size of less than 1 mm, preferably less than 0.5 mm, particularly preferably less than 0.4 mm, and quite particularly preferably less than 0.3 mm.

10. (currently amended) An electric-arc furnace (1), in particular for charging with fine-grained directly reduced iron or ores by a method as claimed in ~~any of claims 1 to 9, claim 1~~ with a furnace roof (4) having at least one opening (10), the at least one opening (10) of the furnace roof (4) being connected with a downpipe (12) leading to the furnace lid (4) from outside for supplying the material to be charged, ~~characterized in that wherein~~ at the opening of the downpipe (12) into the furnace (1) a preferably round or oval dosing orifice (8) is provided.

11. (currently amended) The electric-arc furnace (1) as claimed in claim 10, ~~characterized in that wherein~~ the dosing orifice (8) is an iris.

12. (currently amended) The electric-arc furnace (1) as claimed in claim 10, ~~characterized in that~~ wherein the dosing orifice (8) has at least two slides (9) movable with respect to each other.

13. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 12, characterized in that~~ claim 10, wherein the dosing orifice (8) is inclined with respect to the horizontal by not more than 25°.

14. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 12, characterized in that~~ claim 10, wherein the dosing orifice (8) is arranged horizontally.

15. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 14, characterized in that~~ claim 10, wherein the bulk recipient vessel constitutes a mass flow silo.

16. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 15, characterized in that~~ claim 10, wherein the downpipe (12) is arranged vertically.

17. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 16, characterized in that~~ claim 10, wherein below the dosing orifice (8) a preferably vertical protective tube (7) is provided.

18. (currently amended) The electric-arc furnace (1) as claimed in claim 17, ~~characterized in that~~ wherein the length of the protective tube (7) is about 1 to 3 times the maximum diameter of the stream of bulk material.

19. (currently amended) The electric-arc furnace (1) as claimed in claim 17 or 18, ~~characterized in that~~ wherein the protective tube (7) is cooled.

20. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 17 to 19, characterized in that~~ claim 17, wherein the diameter of the

protective tube (7) is at least twice as large as the opening diameter of the dosing orifice (8).

21. (currently amended) The electric-arc furnace (1) as claimed in ~~any of claims 10 to 20, characterized in that claim 10, wherein~~ the maximum opening diameter of the dosing orifice (8) is smaller than or equal to the diameter of the downpipe (12).